

Claims

1. A high-pressure fuel pump (10) for a fuel injection system (56), having a housing (17, 47), having a low-pressure inlet (45), having a supply chamber (31) in which the fuel is compressed, having an intake valve (35) between the supply chamber (31) and the low-pressure inlet (45), a valve member of the intake valve (35) being braced against a piston (13) via a compression spring (43) disposed in the supply chamber (31), and having a high-pressure outlet, characterized in that the valve member of the intake valve (35) is embodied as a ball (39).
2. The high-pressure fuel pump of claim 1, characterized in that between the compression spring (43) and the ball (39), a spring plate (41) is provided.
3. The high-pressure fuel pump of claim 1 or 2, characterized in that the diameter of the ball (39) is less than the diameter of the compression spring (43).
4. The high-pressure fuel pump (10) of one of the foregoing claims, characterized in that a sealing seat (37) that cooperates with the ball (39) is present in the housing (17, 47).
5. The high-pressure fuel pump of claim 4, characterized in that the sealing seat (37) has a seat angle (α) of between 30° and 150°, in particular 90°.
6. The high-pressure fuel pump of one of the foregoing claims, characterized in that the housing (17, 47) includes a screw (47), which closes off a cylinder bore (31) from outside; and that the sealing seat (37) is embodied in a face end (52), toward the supply chamber (31), of the screw (47).

7. The high-pressure fuel pump (10) of claim 6, characterized in that the screw (47) has a region (50) of reduced diameter; that the reduced-diameter region (50) together with the housing (17) defines an annular chamber (51); and that the annular chamber (51) communicates hydraulically with the low- pressure inlet (45).

8. A fuel injection system (56), having a fuel tank (58), having at least one injection valve (64) which injects the fuel directly into the combustion chamber (66) of an internal combustion engine (54), having at least one high-pressure fuel pump (10), and having a fuel collection line (62) to which the at least one injection valve (64) is connected, characterized in that the high-pressure fuel pump (10) is embodied in accordance with one of claims 1 through 7 (Fig. 4).

9. An internal combustion engine (54), having at least one combustion chamber (66) into which the fuel is injected directly, characterized in that it has a fuel injection system (56) in accordance with claim 8 (Fig. 4).